ATTACHMENT J04

Fort McNair Electric Distribution System

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J04 Fort McNair Electric Distribution System

J04.1 Fort McNair Overview

Fort McNair is a U.S. Army Installation located in the southwestern portion of the District of Columbia, very convenient to the National Airport and the Pentagon. Named in honor of Lt. Gen. Lesley J. McNair, Army Ground Forces commander who was killed in Normandy in 1944. It is currently home to the National War College, the Industrial College of the Armed Forces, and the Inter-American Defense College. Approximately 1,000 military personnel work within the Installation's 98 acres.

J04.2 Electric Distribution System Description

J04.2.1 Electric Distribution System Fixed Equipment Inventory

The Fort McNair electric distribution system consists of all appurtenances physically connected to the distribution system from the point where the distribution system enters the Installation and Government ownership starts to the point of demarcation, defined by the Right of Way, electric delivery points. The system may include, but is not limited to, transformers, circuits, protective devices, utility poles, ductbanks, switches, street lighting fixtures, and other ancillary fixed equipment. The actual inventory of items sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

J04.2.1.1 Description

Ft. McNair is supplied 13.8 kV electrical power from two Potomac Electric Power Company (PEPCO) feeders, No. 14639 and 14642, at 4th and P Streets, and a second service is supplied separately by PEPCO feeders, No. 14637 and 14639, at switchgear near 2nd and T Streets, which serves only Building 62, Marshall Hall. All PEPCO feeders originate at Buzzard Point generating station 'B'. (See single line diagram at the back of this section.[1])

[1] The sequence of Feeder #4 connections is incorrect as shown. The connection for Building #205 is before the connection to Building #219. The Single Line Diagram could not be modified to correct this issue.

Main Switching Station

Building 62 Switching Station

The main Installation feeders terminate in a government-owned, medium voltage set of switchgear located in a "sheltered aisle double row" enclosure adjacent to P Street. The 13.8 kV Cutler-Hammer switchgear was replaced in 1998.

The PEPCO feeders are terminated at the two main air breakers. The main switching station supplies electric power to the Installation via two feeders that distribute electric power to various secondary substations and pad mounted transformers. Each feeder is tapped off of one side the switchgear bus via a dummy circuit breaker. The feeders are designated as feeder No. 1 and No. 2. The normally opened tie circuit breaker is interlocked with the two main breakers, thus preventing both mains to close when the tie breaker is closed. Upon a failure or voltage loss on one of the incoming service feeders, the associated main breaker is opened and the tie breaker is automatically closed. The entire load is then supplied from the remaining energized incoming feeder.

Feeder No. 1 distributes power to the east section of the Installation whereas the west section of the Installation receives its power from feeder No. 2. These feeders are routed underground in a system of ductbanks and manholes. This system was installed in 1966. The underground feeders' conductors are 3/C #1/0 AWG, lead shielded copper with an approximate ampacity of 165 amps at 13.8 kV. Due to the abundance of water in the underground system, as well as the age of the system, the majority of the 15 kV insulated cables are lead sheathed.

A 1996 study of the Electric system by StV/Lyon Associates, indicated that the Installation feeders should not require upgrading to meet demand growth anticipated over the next twenty years. The study did, however, indicate the need to replace the main 13.8 kV switchgear, which did not meet PEPCO's requirements, and this was accomplished in 1998.

The original 1922 street lighting at Fort McNair has been replaced and includes protective equipment and magnetic contactor with photoelectric cell controls in several existing distribution vaults, as well as new cables and supplementary new distribution ducts. The former series street lighting standards were converted so each unit includes a regulated ballast, and a single 75-watt high pressure sodium lamp. The existing system is generally adequate to support present facilities. Street lighting provides adequate light for both vehicles and pedestrians. A 16-foot high standard light fixture is used along streets and paths at Fort McNair. Spacing of light standards on primary streets is 80-feet on center. On secondary streets, lights are spaced at 150-feet on center. In large parking lots and recreational facilities, 25-30 foot tall light standards are utilized.

Typical Street Light

J04.2.1.2 Inventory

Table 1.A provides a general listing of the major electric system fixed assets for the Fort McNair electric distribution system included in the purchase. Table 1.B, Fort McNair

Manhole Survey Summary, is included from a year 2000 Henry Adams, Inc report. The system will be sold in an "as is, where is" condition without any warrant, representation, or obligation on the part of the Government to make any alterations, repairs, or improvements. All ancillary equipment attached to and necessary for operating the system, though not specifically mentioned here in, is considered part of the purchased utility.

TABLE 1.A
Fixed Inventory – Fort McNair Electric Distribution System Inventory

Component	Unit	Quantity	Construction Date
Underground Lines			
250 KCM	LF	3,252	1966
300 KCM	LF	92	1966
500 KCM	LF	6,088	1966
1/0	LF	13,653	1966
2/0	LF	3,468	1966
3/0	LF	1,376	1966
4/0	LF	639	1966
Duct bank 1W	LF	1,555	1966
Duct bank 2W	LF	2,483	1966
Duct bank 3W	LF	1,112	1966
Duct bank 4W	LF	5,053	1966
Duct bank 5W	LF	32	1966
Duct bank 6W	LF	848	1966
Duct bank 8W	LF	4,390	1966
Duct bank 12W	LF	15	1966
Miscellaneous Items			
Pad Mount Sect. Switches	EA	11	1966
Meters	EA	17	1966
Transformers Pad Mount*			
3Ph – 225 kVA	EA	1	1993
3Ph – 500 kVA	EA	3	1993
3Ph – 750 kVA	EA	2	1993
3Ph – 1000 kVA	EA	4	1993
3Ph – 2000 kVA	EA	2	1993
Street Lights			
Street Light Conductor	LF	43,855	1992
High Pressure Sodium Fixtures	EA	97	1992
Metal Halide Fixtures	EA	28	1992
Light Pole 20′	EA	97	1992
Light Pole 30′	EA	28	1992
Switching Stations			
Main Switching Station	EA	1	1997
Bldg 62 Switching Station	EA	1	1991

Notes:

kVA = nominal kilovolt amperes
Ea = each
LF = linear feet
Ph = Phase

* Note: Installation dates determined from discussions with Fort McNair personnel.

TABLE 1.B
Fort McNair Manhole Survey Summary

Manhole	Water Level	Infrared Test	Structural Condition	Comments
1	Dry	No Hot Spots	OK	
12	Some Water	No Hot Spots	OK	Water level is below cables
13	Dry	No Hot Spots	OK	
14	Some Water	No Hot Spots	OK	Water level is below cables; includes Sump Pump
15	Some Water	No Hot Spots	OK	Water level is below cables
16	Some Water	No Hot Spots	OK	Water level is below cables
18	Dry	No Hot Spots	OK	
19	Full of Water	Hot	OK	Required pumping
20	Full of Water	No Hot Spots	OK	Required pumping
21	Dry	Hot	OK	Secondary has hot splices
21A	Dry	No Hot Spots	OK	Square Manhole
22	Dry	No Hot Spots	OK	
23	Dry	No Hot Spots	OK	
24	Dry	No Hot Spots	OK	Disconnect in manhole for power to USO show
25	Some Water	No Hot Spots	OK	
26A	Some Water	No Hot Spots	OK	Water level is below cables
28A	Dry	No Hot Spots	OK	
30	Dry	No Hot Spots	OK	
30A	Some Water	No Hot Spots	OK	Water level is below cables
33	Some Water	No Hot Spots	OK	Water level is below cables
34	Some Water	No Hot Spots	OK	Water level is below cables
36	Some Water	No Hot Spots	OK	Required pumping
37	Some Water	No Hot Spots	OK	Water level is below cables
39	Some Water	No Hot Spots	OK	Water level is below cables, some secondary cables in manhole
40	Dry	No Hot Spots	OK	
42	Dry	No Hot Spots	OK	
43	Some Water	No Hot Spots	OK	Water level is below cables
44	Dry	No Hot Spots	OK	
45	Some Water	No Hot Spots	OK	Water level is below cables
45A	Some Water	No Hot Spots	OK	Water level is below cables
46	Dry	No Hot Spots	OK	
47	Some Water	No Hot Spots	OK	Water level is below cables
52	Dry	No Hot Spots	OK	Includes drain
53	Dry	No Hot Spots	OK	
54	Dry	No Hot Spots	OK	Includes drain
57	Dry	No Hot Spots	OK	

J04.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and Table 3 lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
Spare Parts - Fort McNair Electric Distribution System

Qty	Item	Make/Model	Description	Remarks
Fort McNair maintains an inventory of spare parts for the electric distribution system. Contents of the inventory vary as items are used and/or purchased. Availability of this inventory to the new owner will be negotiated before or during the transition period.				

TABLE 3
Specialized Equipment and Vehicles - Fort McNair Electric Distribution System

Description	Quantity	Location	Maker
No specialized equipment or vehicles for maintenance of the Fort McNair electric distribution system will be transferred to the new owner of the system.			

J04.2.3 Electric System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records - Fort McNair Electric Distribution System

Qty	Item	Description	Remarks
Fort McNair maintains a limited collection of technical manuals, drawings, and records on the installed components of the electric distribution system. This information will be transferred to the new owner during the transition period. System maps will be available in the bidders' library.			

J04.3 Current Service Arrangement

Fort McNair purchases its electric power requirements from PEPCO under its Schedule MS Alternate tariff rates. This rate schedule is available to Federal Government installations with monthly average metered demands of 1,500 kW or more. There are two power delivery points, one located at the northwestern border of the Installation, and a single switching station at Building 62 on the eastern boundary of the Installation.

J04.4 Secondary Metering

The Installation shall require secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor

shall assume full ownership and responsibility for existing and future secondary meters IAW Clause C.3.

J04.4.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW H.5 and J04.5 below.

TABLE 5

Existing Secondary Meters (as of the beginning of FY01) - Electric System

INDEX NO.	FACILITY NO.	LOCATION OF METER	OCCUPANCY
1	1	201 Second Ave	Officer's Quarters
2	7	225 Second Ave	Officer's Quarters
3	8	229 Second Ave	Officer's Quarters
4	15	257 Second Ave	Officer's Quarters
5	16	105 First St	SNCO Quarters
6	17	262 Third Ave	Sports Shop
7	19	109 First St	SNCO Quarters
8	20	251 Third Ave	Officer's Quarters
9	21	302 Third Ave	Housing Office
10	23	202 Fourth Ave	SNCO Quarters
11	35	102 Fourth St	Admin Offices
12	43	110 Fourth Ave	Shoppette
13	49	401 B St	Fitness Center
14	52	210 B St	Inter American College
15	60	100 C St	Officer's Club
16	61	300 D St	Roosevelt Hall
17	62	300 Fifth Ave	Marshall Hall

J04.4.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in Table 6. New secondary meters shall be installed IAW Clause C.17, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Clauses C.3, H.5, and J04.5 below.

TABLE 6

New Secondary Meters - Fort McNair Electric Distribution System

Meter Location	Meter Description
Fort McNair will require the successful bidder provide and install electric meters on all permanent buildings.	

J04.5 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to the Contracting Officer's designee. (This information will be provided upon award)

Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time, duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Meter Reading Report: The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

System Efficiency Report: If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

J04.6 Energy Savings Projects

An Energy Saving Performance Contract (ESPC) has been awarded at Fort McNair, 18 years remains for the current contract. IAW C.3, Utility Service Requirement, there have been no projects that affect the utility privatization of the exterior electric, potable water or wastewater utility systems.

J04.7 Service Area

IAW Clause C.4, Service Area, the service area is defined as all areas within the Fort McNair boundaries.

J04.8 Off-Installation Sites

There are no off-installation sites associated with this scope.

J04.9 Specific Transition Requirements

IAW Clause C.17, Transition Plan, Table 7 lists service connections and disconnections required upon transfer, and Table 8 lists the improvement projects required upon transfer of the Fort McNair electric distribution system.

TABLE 7

Service Connections and Disconnections - Fort McNair Electric Distribution System

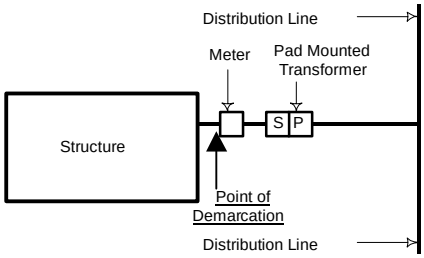
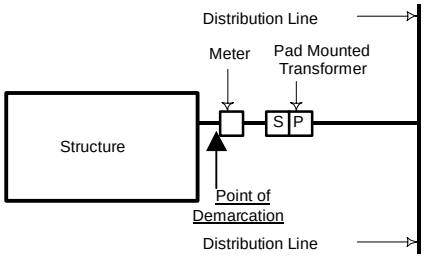
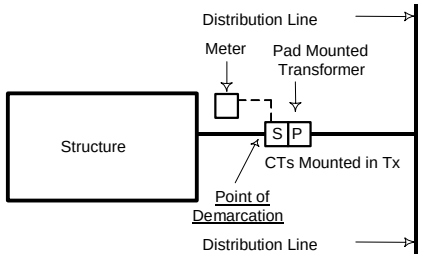
Location	Description
None identified as of the beginning of FY02.	

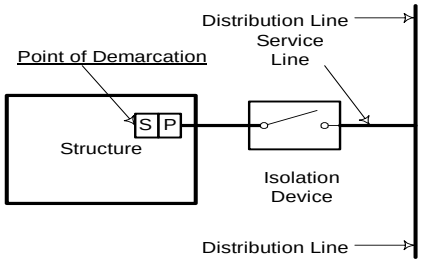
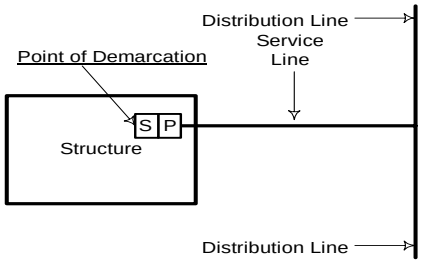
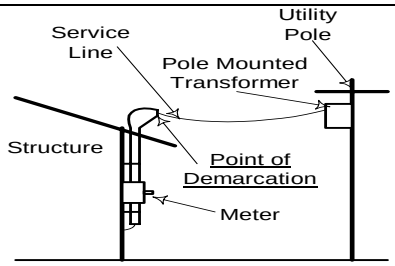
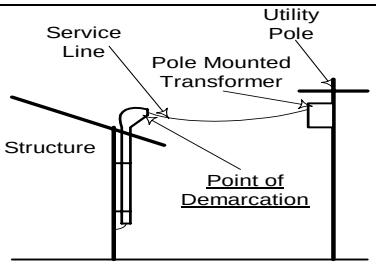
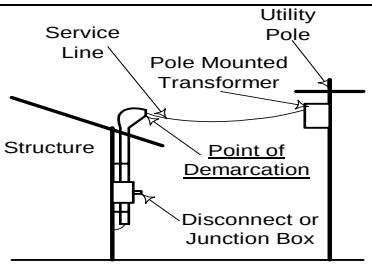
TABLE 8
System Improvement Projects - Fort McNair Electric Distribution System Fort McNair

Project Location	Project Description
Fort McNair Electric System	Loop Tie Feeders to improve reliability and availability of electric system.

J04.10 Electric Distribution System Points of Demarcation

The point of demarcation is defined as the point on the distribution system where ownership changes from the Grantee to the building owner. This point of demarcation will typically be at the point the utility enters a building structure or the load side of a transformer within a building structure. The table below identifies the type and general location of the point of demarcation with respect to the building for each scenario. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during the joint inventory of facilities.

Point of Demarcation (POD)	Applicable Scenario	Sketch
POD is down current side of the meter.	Residential service (less than 200 amps and 240V 1-Phase), and three phase self contained meter installations. Electric meter exists on or within five feet of the exterior of the building on an underground secondary line.	
POD is down current side of the meter.	Residential service (less than 200 amps and 240V 1-Phase), and three phase self contained meter installations. Electric meter exists on or within five feet of the exterior of the building on an underground secondary line.	
POD is the transformer secondary terminal spade.	Three Phase CT metered service. Note: The meter, can, CTs, and associated wires are owned and maintained by the electric utility owner.	

Point of Demarcation (POD)	Applicable Scenario	Sketch
POD is secondary terminal of the transformer inside of the structure.	Transformer located inside of structure and an isolation device is in place with or without a meter. Note: Utility owner must be granted 24-hour access to transformer room.	
POD is secondary terminal of the transformer inside of the structure.	Transformer located inside of structure with no isolation device in place. Note: Utility Owner must be granted 24-hour access to transformer room.	
POD is where the overhead conductor is connected to the weatherhead.	Electric meter is connected to the exterior of the building on an overhead secondary line. Note: The meter and meter can, though beyond the POD, are owned and maintained by the utility owner.	
POD is where the overhead conductor is connected to the weatherhead.	Pole Mounted Transformer located outside of structure with secondary attached to outside of structure with no meter.	
POD is where the overhead conductor is connected to the weatherhead.	A disconnect switch or junction box is mounted to the exterior of the structure with no meter.	
POD is at the overhead service line's connection to the service entrance mast. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD	Electric power is provided to a water facility via an overhead service drop. This configuration could be found at facilities dedicated to the water utility such as a water well, pump station, or water tower.	None

Point of Demarcation (POD)	Applicable Scenario	Sketch
for the electric meter is at the water utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric utility owner's meter. The water utility owner owns the service entrance mast.		
POD is at the transformer secondary terminal spade. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD for the meter is at the water utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric meters and transformers.	Electric power is provided to a water facility via an underground service connection. This configuration could be found at facilities dedicated to the water utility such as a water well, pump station, or water tower.	None
POD is at the overhead service line's connection to the service entrance mast. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD for the electric meter is at the wastewater utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric utility owner's meter. The wastewater utility owner owns the service entrance mast.	Electric power is provided to a wastewater facility via an overhead service drop. This configuration could be found at facilities dedicated to the wastewater utility such as a lift station or wastewater treatment plant.	None
POD is at the transformer secondary terminal spade treatment plant. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD	Electric power is provided to a wastewater facility via an underground service connection. This configuration could be found at facilities dedicated to the wastewater utility such as a lift station or wastewater treatment plant.	None

Point of Demarcation (POD)	Applicable Scenario	Sketch
for the meter is at the wastewater utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric meters and transformers.		

J04.10.1 Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above scenarios.

Building No.	Point of Demarcation Description
None	

J04.10.2 Plants and Substations

Description	Facility #	State Coordinates	Other Information
None			

Note: The sequence of Feeder #4 connections is incorrect as shown. The connection for Building #205 is before the connection to Building #219. The Single Line Diagram could not be modified to correct this issue.

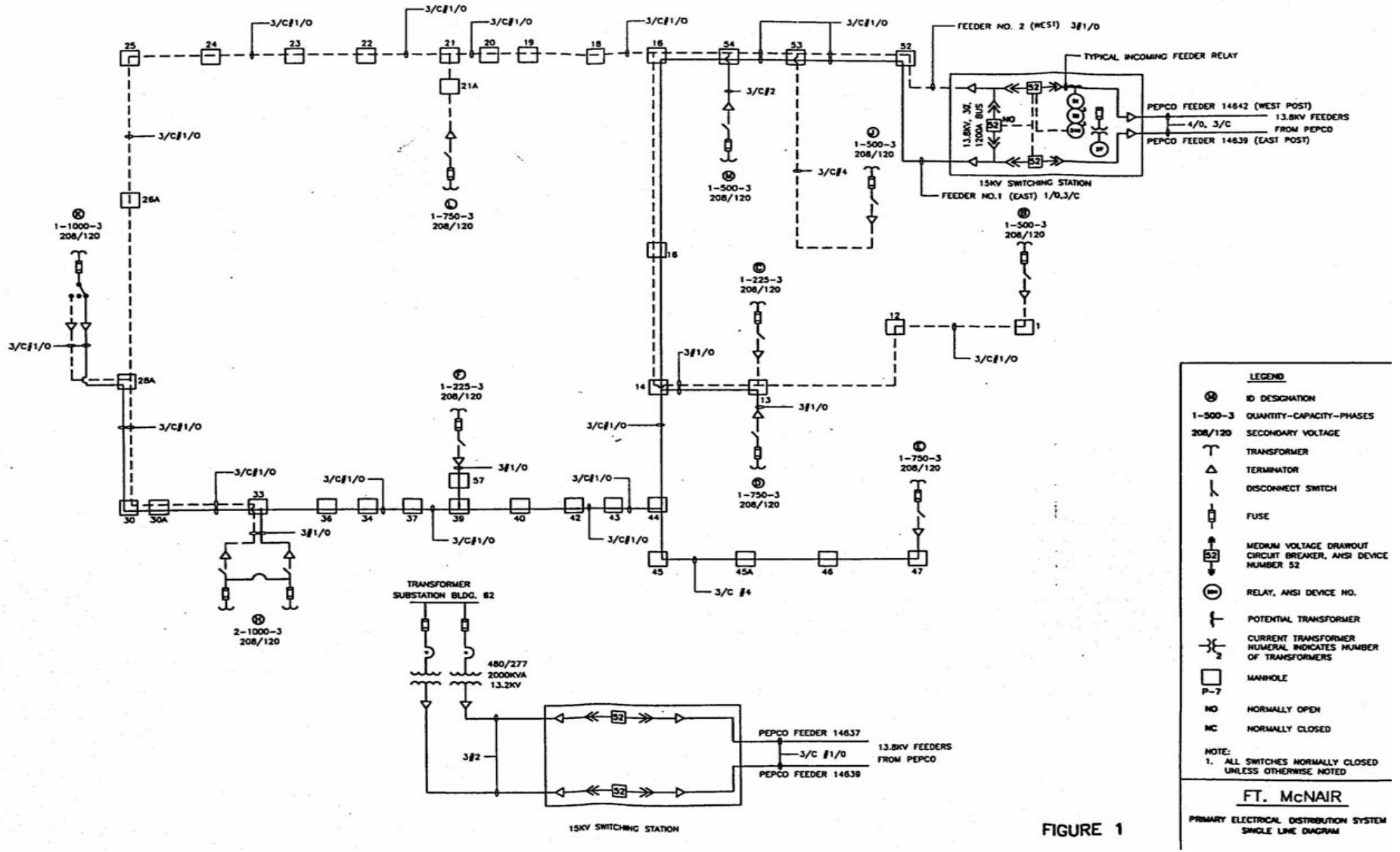

FEEDER NO. 2 (WEST) 3#1/0
TYPICAL INCOMING FEEDER RELAY
PEPCO FEEDER 14642 (WEST POST)
13.8KV FEEDERS
4/0, 3/C
FROM PEPCO
PEPCO FEEDER 14639 (EAST POST)
13.8KV, 3Ø, 1200A BUS
15KV SWITCHING STATION
FEEDER NO.1 (EAST) 1/0,3/C
1-1000-3 208/120
1-750-3 208/120
1-500-3 208/120
1-225-3 208/120
2-1000-3 208/120
3/C#1/0
3/C#2
3/C#4
3#1/0
TRANSFORMER SUBSTATION BLDG. 62
480/277
2000KVA
13.2KV
PEPCO FEEDER 14637
3/C #1/0
PEPCO FEEDER 14639
15KV SWITCHING STATION
LEGEND
ID DESIGNATION
QUANTITY-CAPACITY-PHASES
SECONDARY VOLTAGE
TRANSFORMER
TERMINATOR
DISCONNECT SWITCH
FUSE
MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER, ANSI DEVICE NUMBER 52
RELAY, ANSI DEVICE NO.
POTENTIAL TRANSFORMER
CURRENT TRANSFORMER NUMERAL INDICATES NUMBER OF TRANSFORMERS
MANHOLE
NORMALLY OPEN
NORMALLY CLOSED
NOTE:
1. ALL SWITCHES NORMALLY CLOSED UNLESS OTHERWISE NOTED
FT. McNAIR
PRIMARY ELECTRICAL DISTRIBUTION SYSTEM SINGLE LINE DIAGRAM

FIGURE 1